



Antibacterial Effect, Commonest Property among Nanotechnology Products

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According to statistics on NPD, a number of 870 among all 6300 products stored on Nanotechnology Products Database (NPD) have antibacterial properties. These products are produced in 225 companies from 28 countries all over the world. It seems that silver, titanium dioxide, silicon dioxide, and gold nanoparticles are the most commonly used nanostructures in these products.

As technology develops every day, it is now easier to eliminate negative and harmful effects of microorganisms from human's life. In the recent years, researchers have succeeded in discovering metal compounds with antibacterial and antimicrobial properties, which prevent the growth of bacteria and fungi. Nanotechnology has been a pioneer technology in this regard.

StatNano has created a databank for nanotechnology products produced in various countries in order to organize information and data about these products. According to its latest update, a number of about 6300 products have been stored on NPD by the beginning of November 2016, among which 870 products have antibacterial properties. These products have been produced and presented to the market by 225 companies from 28 countries all over the world.

[Taiwan](#), the [United States](#), [South Korea](#), [Japan](#), and [Iran](#) are the top countries in the number of individual brands with antibacterial properties. Among these products, mention can be made of technical, home, and sport textiles such as bed sheet, blanket, yarn, fabric, leather, shoe, socks, shirt, medical devices such as wound bandage, operating room gown, and armband, construction products such as paint and concrete, cosmetics including lotion, sun-block lotion, moisturizing lotion, personal care devices such as hair dryer and hair curler, home appliance such as air filters, washing machine, refrigerator, vacuum cleaner, and water and wastewater products such as water purification filters.

A study on NPD shows that Keding Enterprise, Hitachi, Ua Wood Floors, VALERA: Swiss Hair Specialists, Hollister Incorporated, and Mitsubishi Electronic are the top companies to manufacture products with antibacterial properties.

Company	Headquarters	Product Types
Keding Enterprises	Taiwan	Floor, tile
Hitachi, Ltd	Japan	Refrigerator, air filter, vacuum cleaner
Ua Wood Floors	Taiwan	Floor
VALERA: Swiss Hair Specialists	Switzerland	Hair dryer
Tehran Zar Nakh	Iran	Yarn, fabric, underwear, glove, bed sheet, t-shirt, pants
LG Electronics Inc	South Korea	Refrigerator, air filter
Samsung Electronics	South Korea	Refrigerator, air filter, vacuum cleaner, washing machine
Hasang Corporation	South Korea	Various types of combs
Hollister Incorporated	United States	Wound bandage
Mitsubishi Electric	Japan	Refrigerator, air filter

The important point about these products is the presence of at least one of the nanostructures of silver, titanium dioxide, silicon dioxide, or gold nanoparticles in more than 90% of the abovementioned products. In fact, these nanomaterials are the main structure to create antibacterial properties. Other products have nano-clay, Q10 liposome, carbon nanofibers, and copper and nickel sulfide nanoparticles.

For more information about antibacterial properties in nanotechnology products, visit [NPD website](#).